

Chemical Tests for Intoxication

Breath Test Operator Training Course

**Indiana State Department of Toxicology
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Chemical Tests for Intoxication Course Schedule

Day 1

0800 – 0815	Sign-in/Registration
0815 – 0830	ILEA
0830 – 0900	IAC 260
0900 – 1030	Pharmacology and Toxicology of Alcohol
1030 – 1130	Breath Test Instrument and Approved Method
1130 – 1145	Demonstration of Personal Breath Test
1145 – 1200	Lab: Perform Personal Breath Test
1200 – 1300	LUNCH
1300 – 1430	Interpretation, Approved Method, Step 7, Care of Instrument, Demonstration of Breath Test, Simulators
1340 – 1615	Lab: Use of Simulators, Unknown Simulator Tests, Review of Results
1615 – 1645	Quiz

Day 2

0800 – 0830	Review
0830 – 0900	Preliminary Breath Test Instruments
0900 – 1030	Legal Aspects of Breath Testing
1030 – 1200	Lab: Simulator Tests, Breath Alcohol Experiment
1200 – 1300	LUNCH
1300 – 1430	Lab: Unknown Simulator Tests, Perform Breath Test on Instructor
1430 – 1500	Questions and Answers
1500 – 1600	Final Exam

BREATH TEST FOR INTOXICATION TRAINING COURSE

Schedule for course

(See attached Course Schedule – page i)

Requirements:

Must be present for entire course

Must obey ILEA Rules

Course Staff:

Instructor	Tom Pierce
Chief Toxicologist	Dr. Scott Kriger
General Counsel	Teri Kendrick

State Department of Toxicology

Objective:

To present an overview of the duties of the Department

Duties of the Department:

IC 10-20-2 (enacted 2011)

- Conduct analyses for poisons, drugs, and alcohols upon human tissues and fluids
- Report analytical findings of the department
- Consult with Indiana coroners regarding interpretation of analytical findings
- Furnish expert testimony
- Provide instruction in toxicology to law enforcement officers
- Certify law enforcement officers as required by law for administration of breath and other chemical tests
- Provide instruction and technical assistance to prosecutors and defense counsel regarding ISDT lab results
- Provide instruction to judges on toxicology and alcohol and drug testing

IC 9-30-6-5

- The director of the department of toxicology shall adopt rules concerning standards and regulations for:
 - selection, training, and certification of breath test operators
 - selection and certification of breath test equipment and chemicals, and
 - certification of the proper technique for administering a breath test

IAC 260

Objective:

To present an overview of Indiana Administrative Code (IAC) Title 260 regarding breath test operators and instruments

A complete copy of Title 260 is available at:

<http://www.in.gov/legislative/iac/T02600/A00011.PDF>

IAC 260 regulates:

Certification and recertification of breath test operators

Selection and certification of breath test instruments

Approved Method for the administration of a breath alcohol test

Reference: IC 9-30-6-5

Screening Examination (260 IAC 1.1-1-1):

- (a) An examination shall be authorized by the director (of the State Department of Toxicology) for the screening of applicants for training as breath test operators.
- (b) The screening examination shall include such subjects as are deemed relevant by the director.
- (c) Any person selected to attend the training course for breath test operators must have demonstrated eligibility to the director by taking and passing the screening examination.
- (d) Any eligible person having failed the school may be admitted to a subsequent school without repeating the screening examination.

Training Courses (260 IAC 1.1-1-2):

- (a) Any person to be certified as a breath test operator must attend and complete a course in the theory and operation of test devices approved by the director.
- (b) The course shall include a minimum of twelve (12) hours of instruction.
- (c) The instruction shall include lectures, laboratory training, and demonstrations in accordance with the following:
 - 1. The pharmacology and toxicology of alcohol.
 - 2. The theory, operation, and care of breath test instruments.
 - 3. The legal aspects of breath testing for ethanol.
 - 4. The interpretation of breath test results.

5. Laboratory training using an approved instrument to analyze breath for ethanol:

(a) using known ethanol-water or ethanol-gas solutions; or

(b) on a human who has consumed a test dose of ethanol;

or both.

(d) Examinations shall be as follows:

(1) A written examination shall be given after six (6) to eight (8) hours of instruction.

(2) A laboratory examination shall be given consisting of, at a minimum, demonstration of proper technique in giving a breath test.

(3) A written final examination shall be given at the completion of the school. The final examination shall be prepared, administered, and graded under the direction of the director.

(e) To successfully complete the approved course, a candidate must have performed satisfactorily in the laboratory and demonstrated his or her qualifications to the satisfaction of the director in all examinations.

Certification and Recertification of Operators (260 IAC 1.1-1-3):

(a) The director will certify persons who:

(1) have successfully completed a breath test for intoxication course; and

(2) are employed by a law-enforcement agency

(b) Any person certified as a breath test operator must be recertified by examination at least every two (2) years from the month of certification or recertification.

(c) The recertification procedure shall be established by the director.

(d) Any person seeking recertification must demonstrate his or her qualifications to the satisfaction of the director by:

(1) taking a written examination similar in content to the final examination given at the completion of the school for training breath test operators; and

(2) Demonstrating competence in performing an evidentiary breath test by one of the following methods as prescribed by the director:

Practical test during recertification, or

Documentation of having performed breath tests in the field since last certification or recertification

Director will establish number, frequency, and method of documentation

(e) Any person

(1) failing the first recertification examination or

(2) not appearing to take this examination

may be given a second recertification examination within sixty (60) days of the first examination. During this time period, the individual is not certified to operate approved evidentiary breath test instruments. If this second examination is failed or missed, the individual will not be certified again until he or she has successfully completed an approved breath course (see section 2 of this rule) held after this second recertification examination.

(f) The director shall issue to all certified and recertified breath test operators a wallet identification certificate, which shall be valid from the date of issuance to the expiration date printed on the certificate.

(g) Nothing in this rule shall prevent the director from suspending or revoking the certification of any operator at any time the director determines such suspension or revocation to be in the best interest of the breath test for ethanol program.

Inspection and Certification of Breath Test Instruments (260 IAC Rule 2)

Instruments must be certified every 180 days.

Location change also requires reinspection and recertification of the instrument.

The inspection shall include at least one test demonstrating that the instrument is in good operating condition and satisfies the accuracy requirements.

Only persons authorized by the director shall inspect approved instruments.

All inspectors shall report their findings to the director.

Certification of breath test instruments shall be based on information provided by authorized inspectors and any other evidence the director may require.

Certificates of inspection and compliance shall remain on file at ISDT, available for viewing during regular office hours.

The current certificate of inspection and compliance shall be sent to the clerk of the circuit court in the county in which the instrument is used.

Approved Method for the Administration of Breath Tests

260 IAC 1.1-3-1:

The director shall approve a method for the administration of a test to analyze breath for ethanol for each approved type of instrument in use.

The approved method shall be followed in making an analysis of breath for ethanol.

260 IAC 1.1-4-8:

The approved method – see below.

Approved Method for Breath Ethanol Analysis using a Datamaster

1. The person to be tested must:

(A) have had nothing to eat or drink;

(B) not have put any foreign substance into his or her mouth or respiratory tract; and

(C) not smoke;

within twenty (20) minutes before the time a breath sample is taken.

2. The green LED on the instrument display must be glowing.

3. Depress the run button, enter the password, and insert the evidence ticket or verify that the external printer is ready to use.

4. Follow the displayed request for information, and enter the information by the keyboard.

5. When “please blow” appears, place a new mouthpiece in the breath tube. The subject must deliver a breath sample.

6. When the printer stops, remove the evidence ticket or report sheet from the printer and check the report printed on the evidence ticket or report sheet for the numerical ethanol subject sample and correct date and time.

7. If the report displays one of the following messages, the test is not valid; proceed as instructed:

(remainder omitted here)

260 IAC 1.1-5-1:

(a) All breath test instrument models must be selected by the director on the basis of testing performed in the department's facility prior to their evidentiary use in Indiana.

(1) The instruments must analyze breath samples and the numerical values reported shall be expressed as grams of ethanol per two hundred ten (210) liters of the person's breath.

(2) The instrument must be as follows:

(A) Capable of calibration for the purpose of certification with a known ethanol standard and maintain this calibration during routine breath ethanol testing;

(B) Able to analyze a known ethanol reference sample within the limits specified, separate from calibration for certification;

(C) Equipped with sufficient features to prevent unauthorized alteration, tampering, or manipulation in order to safeguard the breath sampling process and ethanol concentration analysis.

(b) The instruments for which approved methods are provided in 260 IAC 1.1-4 shall constitute the list of approved models.

Pharmacology and Toxicology of Alcohol

Brief History of Testing

Effects and Types of Alcohols

Alcoholic Beverages

How the Body Processes Alcohol

What Alcohol Does to the Body

Breath Alcohol Determination

Breath Test Legal Challenges

History of Ethanol Testing

Sir Edward Mellanby (1884 - 1955)

Established relationship between BAC and intoxication. (1919)

Erik M.P. Widmark (1889 - 1945)

Described mathematical terms (rho and beta) for alcohol distribution and elimination. (1932)

Goran Liljestrand (1889 - 1968)

Determined that expired air contained an ethanol concentration about 1/2000 that of blood. (1931)

Rolla Harger (1890 - 1983)

Developed first practical breath test instrument (Drunkometer).

Robert Forney (1916 - 1997)

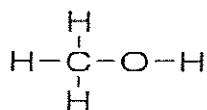
First Director of State Department of Toxicology. (1957)

Robert Borkenstein (1912 – 2002)

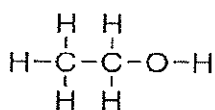
Conducted the first study to demonstrate the relationship between BAC and the likelihood of being in a motor-vehicle accident. (1964)

Types of Alcohols

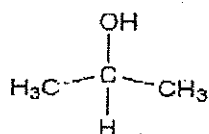
Alcohols are characterized as a chemical class of molecule having a carbon atom bound to an oxygen-hydrogen (-OH) bond.



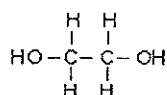
Methanol



Ethanol



Isopropanol



Ethylene Glycol

Methanol

Wood alcohol

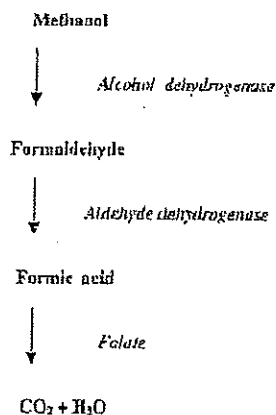
Can cause CNS impairment

Symptoms mirror those of EtOH

Extremely toxic

MeOH inhalation defense

Methanol Metabolism



Isopropanol

Rubbing alcohol

Can cause CNS impairment

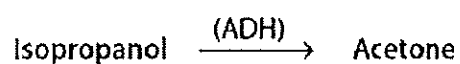
Symptoms mirror those of EtOH

Toxic – metabolized to acetone

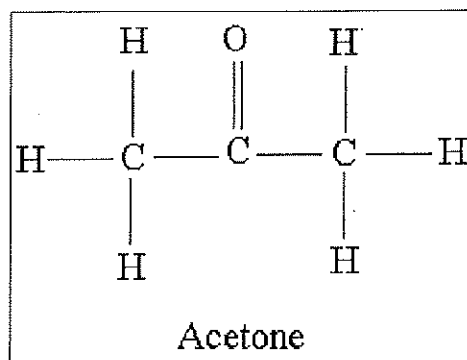
Acetone causes CNS impairment as well

Acetone longer $t_{1/2}$

Isopropanol Metabolism



Acetone (ketone)



Sources of Acetone

Metabolite of Isopropanol

Solvent

Compromised liver function

Fatty liver

Cirrhosis

Diabetic Ketoacidosis

Starvation Ketoacidosis

Ethylene glycol

Component in antifreeze

Considered a polyalcohol

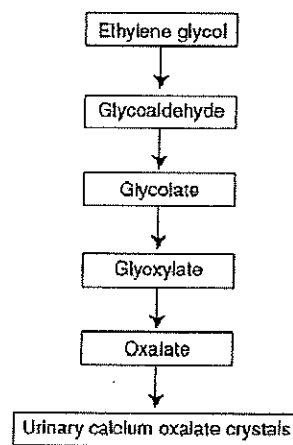
Can also cause CNS impairment

Extremely toxic

Metabolites lead to severe acidosis

Metabolites can also lead to acute renal failure

Ethylene glycol Metabolism



Alcoholic Beverages

These beverages contain the same amount of ethanol:

One beer (12 oz, 4.5%)

One glass of wine (4.5 oz, 12%)

One mixed drink (containing 1.5 oz, 80 proof)

The total amount of ethanol consumed, not the type of beverage, is important.

Fermentation

A biological process in which sugars such as glucose, fructose, and sucrose are converted into cellular energy—this conversion produces ethanol and carbon dioxide. Because yeasts perform this conversion in the absence of oxygen, ethanol fermentation is classified as an anaerobic process.

Distillation

A physical process by which ethanol is separated and purified from a mixture.

Pharmacokinetics of Ethanol

- ❖ What the body does to the drug.

Absorption: how it gets in

Distribution: where it goes

Metabolism: what happens to it

Elimination: where/how it leaves

ADME

Absorption

Mouth - Esophagus - Stomach - Intestine

Mouth:

Ethanol can be absorbed from the mouth but very slowly; not significant

A mouth rinsed with a solution containing ethanol will be alcohol-free in about 10 minutes (MOUTH ALCOHOL)

Stomach:

Ethanol can be absorbed directly from the stomach.

The stomach normally absorbs about 20% ingested

Stomach has thick lining, not really designed for absorption

Small size of EtOH permits its passage.

Intestine:

The upper intestine normally absorbs about 80% of the ingested ethanol.

The lower intestine and lower bowel readily absorb ethanol. However, most ethanol is absorbed from the upper GI tract before it reaches the lower intestine.

Skin:

Ethanol has not been demonstrated in the blood as a result of absorption through the skin. If it is absorbed, the rate is lower than the rate of metabolism.

EtOH absorption defense

Factors that affect rate of ethanol absorption:

The presence of food in the stomach

Type of food

Fatty vs. protein-rich

Strenuous exercise

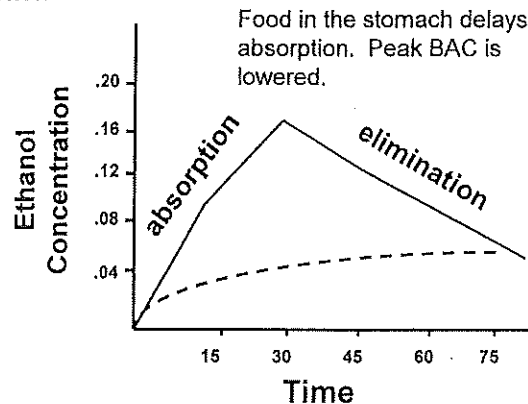
Excitement or fear

Drugs

Smoking

GI pathologies

Ethanol Absorption



Distribution

Ethanol is soluble in water and is distributed throughout the body based on water content.

Tissues and organs that have the highest concentration of water will have the highest concentration of ethanol.

Widmark's rho or Widmark's r

The available water content of an average male is 68%; of an average female, 55%. For the same amount of ethanol per body weight, a woman will have a higher concentration of ethanol.

Ethanol Metabolism

EtOH is metabolized by both the stomach and by the liver; primarily by the liver.

Some EtOH is metabolized by these organs before reaching the general circulation.

Therefore, the amount of EtOH ingested may NOT accurately reflect the calculated BAC.

Effects of Pathological Conditions on Ethanol Metabolism

Fatty Change (steatosis)

Alcoholic Hepatitis

Cirrhosis of the Liver

Diabetes

Metabolism and Elimination

Metabolism:

Approximately 90 - 95 % of absorbed ethanol is metabolized by the body prior to elimination; mostly in the liver.

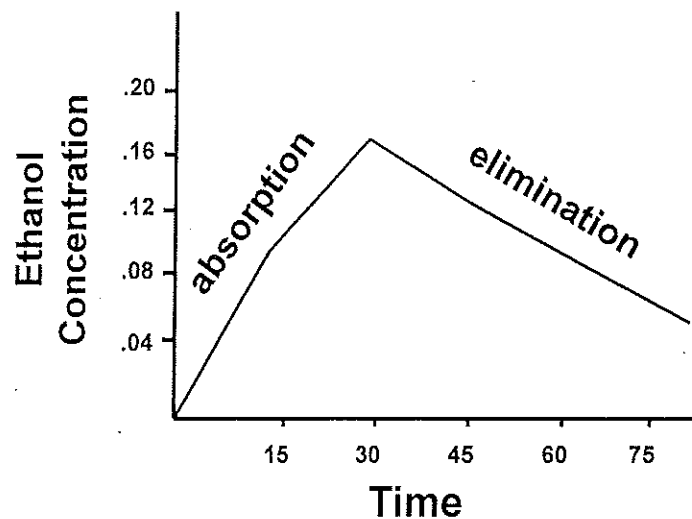
The rest is excreted unchanged in urine, sweat, tears, milk, and breath.

Elimination:

Ethanol disappears from the blood at a constant rate, termed Widmark's β (beta) factor. The rate varies somewhat between individuals.

The average rate of disappearance from the blood is about 15 mg percent per hour (0.015% per hour). (Range = .010% -.030%/hr).

Ethanol Elimination



Toxicology of Ethanol

Ethanol is a CNS Depressant.

CNS = Central Nervous System

Depressant = slows function

Four primary types of impairment

1. Loss of judgment and self control
2. Impairment of vision and hearing
3. Clumsiness of voluntary muscles
4. Decreased awareness of surroundings

BAC (g/100 ml of blood or g/210 l of breath)	Stage	Clinical symptoms
0.01 - 0.05	Subclinical	Behavior nearly normal by ordinary observation
0.03 - 0.12	Euphoria	Mild euphoria, sociability, talkativeness Increased self-confidence; decreased inhibitions Diminution of attention, judgment, and control Beginning of sensory-motor impairment Loss of efficiency in finer performance tests
0.09 - 0.25	Excitement	Emotional instability; loss of critical judgment Impairment of perception, memory, and comprehension Decreased sensory response; increased reaction time Reduced visual acuity, peripheral vision, and glare recovery Sensory-motor incoordination; impaired balance Drowsiness

0.18 - 0.30	Confusion	Disorientation, mental confusion; dizziness Exaggerated emotional states Disturbances of vision and of perception of color, form, motion, and dimensions Increased pain threshold Increased muscular incoordination; staggering gait; slurred speech Apathy, lethargy
0.25 - 0.40	Stupor	General inertia; approaching loss of motor functions Markedly decreased response to stimuli Marked muscular incoordination; inability to stand or walk Vomiting; incontinence Impaired consciousness; sleep or stupor
0.35 - 0.50	Coma	Complete unconsciousness Depressed or abolished reflexes Subnormal body temperature Incontinence Impairment of circulation and respiration Possible death
0.45 +	Death	Death from respiratory arrest

Effects of Ethanol Combined with Other Drugs

☐ CNS Depressants

- Opiates
- Benzodiazepines

☐ Marijuana

- THC
- Synthetic Cannabinoids

☐ Cocaine

- Cocaethylene

☐ Amphetamines

- Methamphetamine
- Amphetamine
- MDMA -- Ecstasy

Tolerance

With practice, the brain can learn to function better under the influence of ethanol. Therefore, people vary in their abilities to handle ethanol, not just as a result of inherent differences, but as a result of experience.

Tolerance is defined as the ability of an organism to adapt. There are two forms of ethanol tolerance including:

- (1) Psychological: Increased ability to alter behavior in order to not appear intoxicated.
- (2) Biochemical: Increased rate of degradation of alcohol to inactive metabolites.

Ethanol Involvement in Auto Crashes

<u>% BAC</u>	<u>Enhancement Factor</u>
0.01-0.04	0.9x
0.05-0.09	1.5x
0.10-0.14	5x
0.15-0.19	14x
0.20-0.24	24x

Borkenstein, et al. 1964

Latest reanalysis of Borkenstein and other data reveals:

at .08 %	Chances are 4x
at .15 %	Chances are 25x
at .20 %	Chances are >100x

Breath Ethanol Determination

As the blood passes through the lungs, ethanol will leave and become part of the expired breath.

Ethanol's distribution between blood and breath obeys Henry's Law.

Henry's Law -- in a closed container, at a given temperature and pressure, a material in solution will be in equilibrium with the air in the space above.

Body temp = 37° C (98.6° F)

Breath temp = 34° C (93.2° F)

The ratio between the concentration of ethanol in the blood and that in the breath from the deepest part of the lung (alveolar air) is called the partition coefficient. The accepted ratio is 2100:1 in the United States.

This ratio means that 2100 mL (2.1 Liters) of alveolar air will contain the same amount of ethanol as does 1 mL of blood.

The amount of ethanol in deep (alveolar) lung air is directly related to the amount present in the blood.

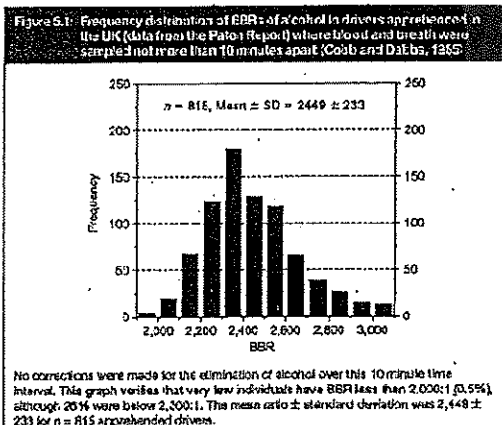
Evidentiary instruments in Indiana are calibrated at a ratio of 2100:1.

Relationship Between Blood and Breath Alcohol Concentrations

$$\text{BAC} = \text{BrAC} (2,100)$$

Table 5.1: Blood to breath ratios of alcohol when samples were taken within 10 minutes of each other. Data taken from the Paton Report using an Intoximeter 3000 ethanol analyzer (Cobb and Dobbs, 1995)

Apparent BBR	Frequency	Relative frequency	Cumulative frequency
1,900-1,999	4	0.5	0.5
2,000-2,099	19	2.5	2.8
2,100-2,199	68	8.5	11.1
2,200-2,299	124	15.2	26.0
2,300-2,399	183	22.1	48.4
2,400-2,499	123	15.6	64.2
2,500-2,599	118	14.6	78.7
2,600-2,699	60	7.1	85.8
2,700-2,799	30	3.8	91.6
2,800-2,899	25	3.2	94.8
2,900-2,999	15	1.8	96.6
3,000-3,099	13	1.6	98.2
> 3,100	14	1.6	100



Factors Affecting Partition Ratio

Temperature: An increase of 1.8 °F amounts to a 7% increase in the result

Example: An individual with a body temperature of 100.4 °F and an actual BAC of 0.0935% will have a BrAC result of 0.10%

Atmospheric Pressure: No evidence to support variations in partition ratio

Cellular Composition: 2,100 value based on hematocrit (cell volume) of 47%; hematocrit varies between 42 and 52% for males and 37 and 47% for females. A person with a lower hematocrit can have a falsely elevated BAC based on BrBAC—the variability is small and ranges from -2 to +5%

Physical Activity: Exercise can underestimate the BAC based on the BrAC

Ethanol reporting units:

Blood – g/100 mL

Breath – g/210 L

100 mL = 1/10 of a liter (0.100 L)

210 L / 0.100L = 2100

Factors in Indiana ensuring that breath tests produce correct results

Blood ethanol, not breath ethanol, produces impairment. A breath result should not produce a higher result than does a blood result.

1. Most of the population has a blood:breath ratio ≥ 2100 , resulting in an underestimation of BAC on instrumentation calibrated to 2100:1. (Anywhere in U.S.)
2. Truncation of 3rd digit; 0.099 will be displayed as 0.09 (up to 9% underestimation). (In most U.S. States)
3. Instruments are calibrated to .076 or .077 gm of Ethanol with a standard solution of .08 gm. (Unique to Indiana)

Consequently, the instrument will underestimate Blood Ethanol Content by up to 20% or more depending upon the individual's blood:breath ratio.

Instruments for testing for Ethanol

Evidentiary

Breath – BAC DataMaster – Absorption of infrared radiation

Blood – Gas Chromatography

Non-evidentiary

PBT – Electrochemical (fuel cell)

Common Challenges to Breath Test Results

Subject vomited or burped:

The argument may be that a subject who had burped or vomited while a high concentration of alcohol existed in the stomach would exhibit falsely elevated breath ethanol levels. (Observe carefully during the 20-minute observation period. Record your observations – including “nothing unusual.”)

Unable to give a sufficient sample due to pulmonary disorders:

(Argument against refusal given for Subject Sample Incomplete. However, only rare cases would truly cause this result.)

The DataMaster requires only 50-100 mL of expired air for a sufficient sample, following a minimum of only 1.5 liters of breath blown.

Improper development of Probable Cause

Sufficient reason for performing breath test was not established prior to the test. The argument may be that the stop was improper or the preliminary tests (SFSTs) were done improperly. (Document carefully.)

This process must be presented correctly in court.

Common Challenges to Breath Test Results (continued)

Subject was not impaired at the time of the incident.

The argument is that the subject had recently consumed an alcoholic beverage, and was still absorbing ethanol at the time of the incident. (Rebutting 3-hour presumption. Usually, this is answered by a Toxicologist.)

Lab Ethanol Measurement

Indiana statutes are based on concentrations in whole blood.

ISDT Lab tests whole blood.

Most hospital labs test serum or plasma.

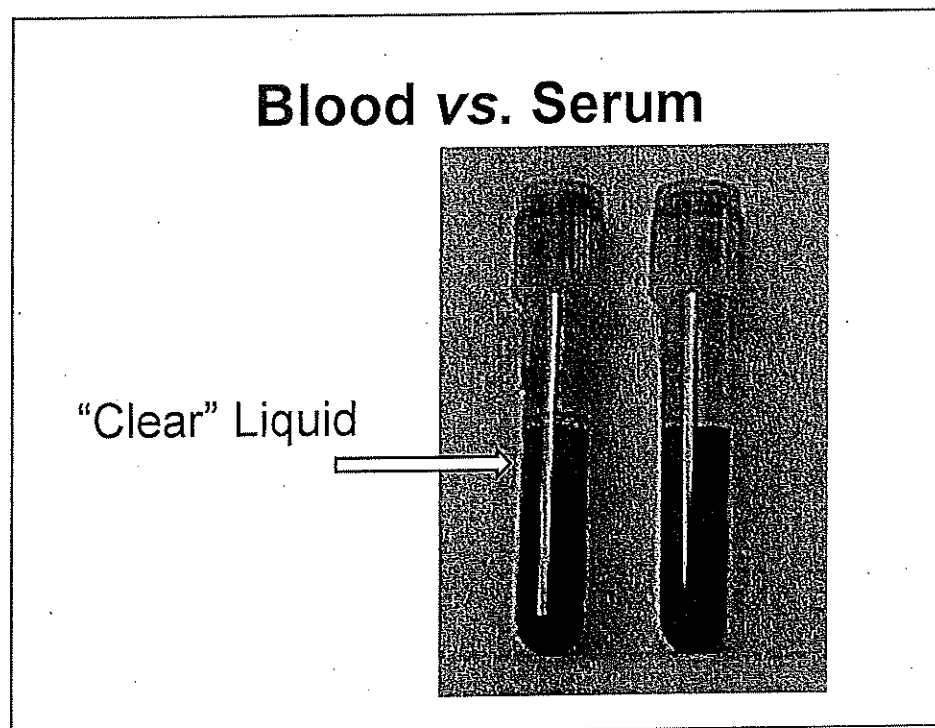
(Some exceptions)

Other types of samples can be tested, but have no evidentiary value in Indiana.

Ratio of ethanol in other fluid to that in whole blood:

serum	1: 1.20
plasma	1: 1.20
saliva	1: 1.10
urine	variable

- Blood (impairment) vs. urine (use)



Forensic Ethanol Measurement

Sampling for blood ethanol:

Use kits distributed by ISDT (toxkits@isdt.in.gov)

Check expiration date

Blood sample tubes are what expire

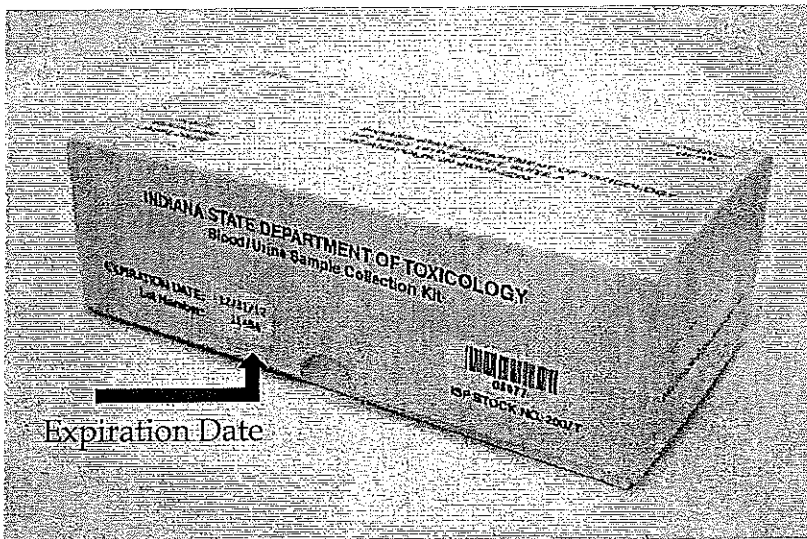
Obtain new gray-stoppered tubes (if needed)

Witness sample collection

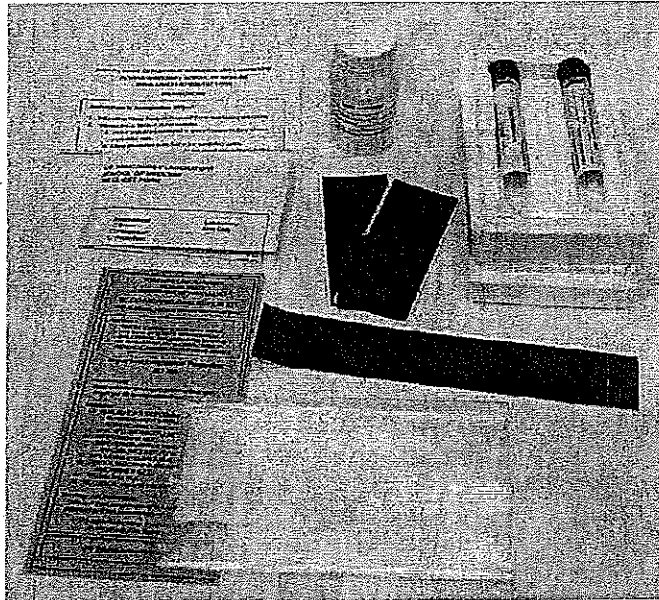
Fill out chain-of-custody

Send to Indiana State Department of Toxicology

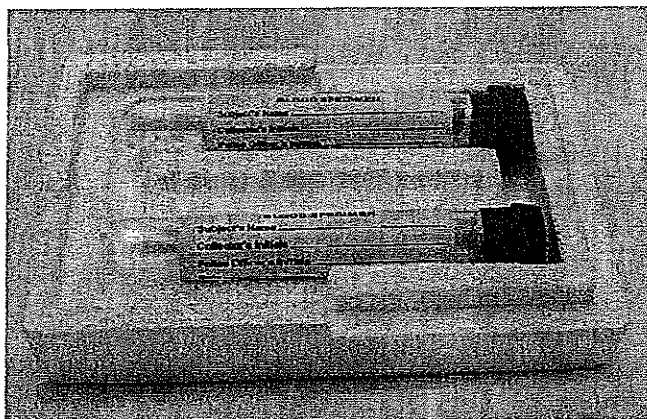
The Kit



Kit Contents



Blood Tubes



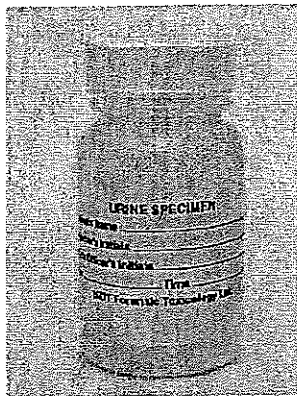
Blood Specimen Preservation

Sodium Fluoride = Preservative

Potassium Oxalate = Anticoagulant

Temperature --- Refrigeration

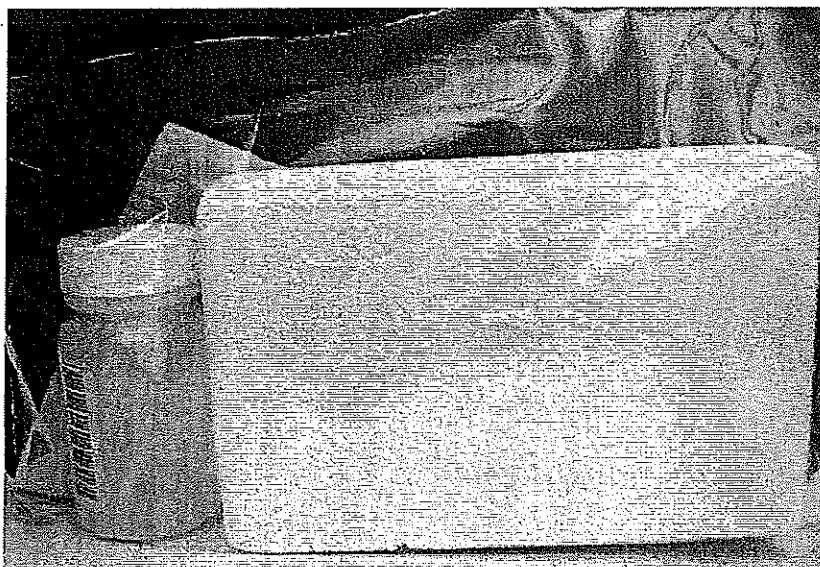
Urine Bottle



R
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n

INDIANA STATE DEPARTMENT OF TOXICOLOGY TOXICOLOGY ANALYSIS REQUEST FORM		ISDT USE ONLY	
(1) SUBJECT INFORMATION			
Name of Subject (Last, First, Middle Initial)		Date of Birth	Height/Weight <input type="checkbox"/> Male <input type="checkbox"/> Female
(2) SUBMITTING AGENCY			
Title (SGT., Deputy, etc.)		Printed Officer/Coroner Name	Agency
Agency Address		Agency Case #	
City/Zip		County of Occurrence	
Telephone		Fax	
(3) TESTS REQUESTED			
Alcohol <input type="checkbox"/> Blood <input type="checkbox"/> Urine <input type="checkbox"/> Other		Note: Refer to ISDT website for list of drugs in panel	
Drugs <input type="checkbox"/> Blood <input type="checkbox"/> Urine <input type="checkbox"/> Other			
Other Specify the name of drug(s) involved in your case:			
(4) TYPE OF CASE			
Traffic: <input type="checkbox"/> Fatal Accident <input type="checkbox"/> PI Accident <input type="checkbox"/> PD Accident <input type="checkbox"/> OWI		Involvement: <input type="checkbox"/> Driver <input type="checkbox"/> Passenger <input type="checkbox"/> Pedestrian	Subject: <input type="checkbox"/> Injured <input type="checkbox"/> Not Injured <input type="checkbox"/> Deceased
Non-Traffic: <input type="checkbox"/> Homicide <input type="checkbox"/> Suicide <input type="checkbox"/> Sexual Assault <input type="checkbox"/> Other (Specify)		Involvement: <input type="checkbox"/> Accused <input type="checkbox"/> Victim	DRE EVALUATION PERFORMED <input type="checkbox"/> YES <input type="checkbox"/> NO
(5) EVIDENCE COLLECTION AND CHAIN OF CUSTODY INFORMATION			
Specimen Collected By: (Print Name)		Collection Facility: (Print Facility Name)	
Date Collected:	Time Collected:	an/vpm	Witness:
Received From	Released To	Purpose	Date Time (an/vpm)
Received From	Released To	Purpose	Date Time (an/vpm)
Received From	Released To	Purpose	Date Time (an/vpm)
Received From	Released To	Purpose	Date Time (an/vpm)
Received From	Released To	Purpose	Date Time (an/vpm)
Received From	Released To	Purpose	Date Time (an/vpm)

Bagged Evidence



Biohazard Seal



Instructions

INDIANA STATE DEPARTMENT OF TOXICOLOGY TOXICOLOGY ANALYSIS REQUEST INSTRUCTIONS

Investigating Officer:

1. Fill out the "Toxicology Analysis Request" form completely and legibly.
2. Witness the collection of the samples.
 - a. Blood should be collected in a gray-top tube.
 - b. Check the tube expiration date prior to collection of sample.
 - c. Urine should be collected in the specimen bottle provided in the ISDT kit or other suitable container.
3. Label each sample container with the following information:
 - a. Name of subject
 - b. Collector initials
 - c. Date of collection
 - d. Time of collection
 - e. Witness initials (Investigating officer)
4. Return filled blood tubes to Styrofoam holder.
5. Place Styrofoam holder and filled urine bottle into plastic zip-lock bag.
 - a. DO NOT remove liquid absorbing sheet from plastic bag.
6. Affix evidence seal to zip-lock bag and return bag to kit box.
7. Place completed "Toxicology Analysis Request" form in kit box.
8. Re-assemble kit box and affix biological specimen labels where indicated on ends of box.
9. Affix biological hazard sticker to marked position on top of box.
10. Send specimens to:
INDIANA STATE DEPARTMENT OF TOXICOLOGY
650 W. 16th Street, Suite A
Indianapolis, IN 46202-2203

Specimen Collector/Notes:

1. Follow appropriate clinical protocol for sample collection (for example, hospital protocol).
2. Use non-alcohol disinfectant to sterilize the skin collection site.
3. If blood specimen collected with a syringe – add sample to blood tube by inserting needle directly through the stopper – do not remove the stopper.
4. Invert blood tubes at least 5 times to ensure proper mixing of the anticoagulant – do not shake vigorously.

ICLH-PCPD-1.1/11

507-66
 Inc. & Printing Co., Inc.

2001

ISDT Aliquot Chain of Custody



Indiana State Department of Toxicology

ISDT SPECIMEN ALIQUOT CHAIN OF CUSTODY

ISDT Case Number(s): (1) _____ OR (2) See Attached Run Sequence

Sequence/Analysis Name: _____ Analyte(s): _____

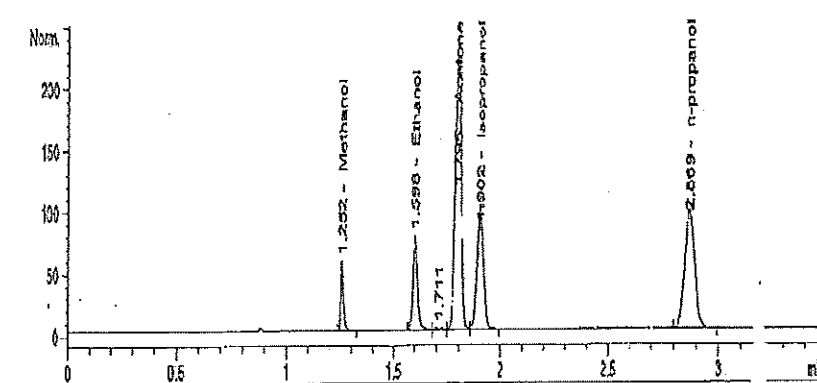
SECOND-PERSON VERIFICATION

Verification Performed	Initials	Date
Received Sample Properly Cans for Potentially Problematic Received Forensic Containers		
Initials		
Controlled Vials vs. Instrument Sequence/Vials vs. Instrument Tray Position		
Initials		
Specimen Not vs. Instrument Sequence/Vials vs. Instrument Tray Position		

DATE	FROM	TO	PURPOSE

ISDT-14-147-1000 10/1/2014 10/1/2014 10/1/2014
 10/1/2014 10/1/2014 10/1/2014 10/1/2014
 Page 1 of 1

The HS-GC Lab Result



Reliable Results

Screening Test – aliquot from original specimen

Confirmation Test – 2 different aliquots from original specimen

All 3 results must agree within 10%

Quality Control samples run in the beginning, end, and after every 10 evidentiary samples

Calibration run for each batch

Proficiency samples from CAP tested

Instrumentation and Approved Method for Breath Test Analysis

Evidentiary Breath Test Instrument

Objectives:

Provide instruction in the theory and operation of the evidentiary ethanol breath test instrument

Theory of operation: Infrared absorbance

Breath Ethanol Determination

Results

Appearance of report

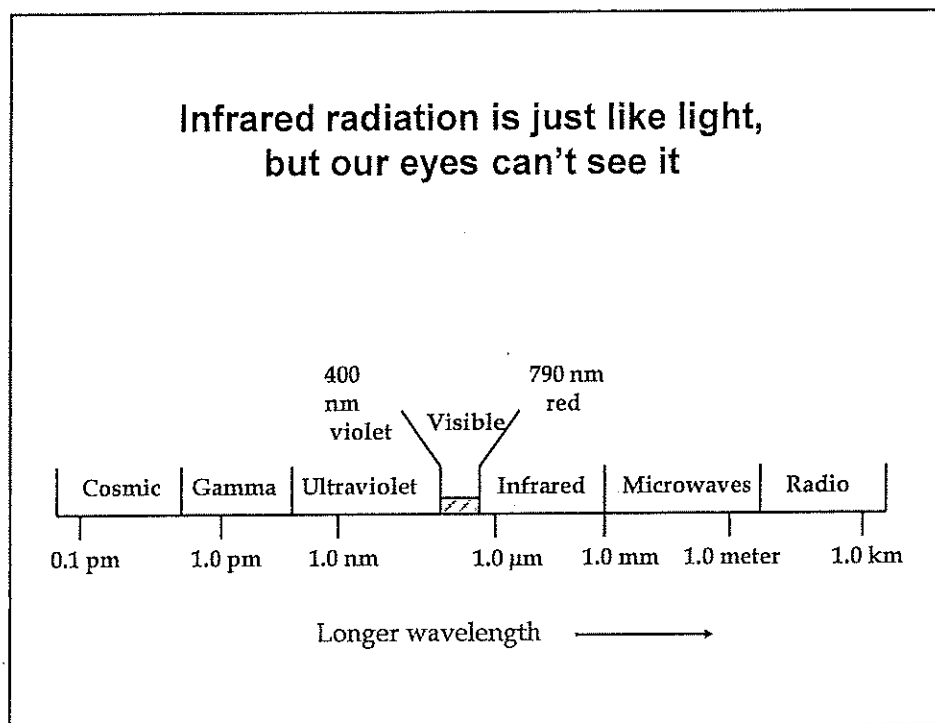
Interpretation of information on the report

Ethanol Analysis by Infrared Absorption

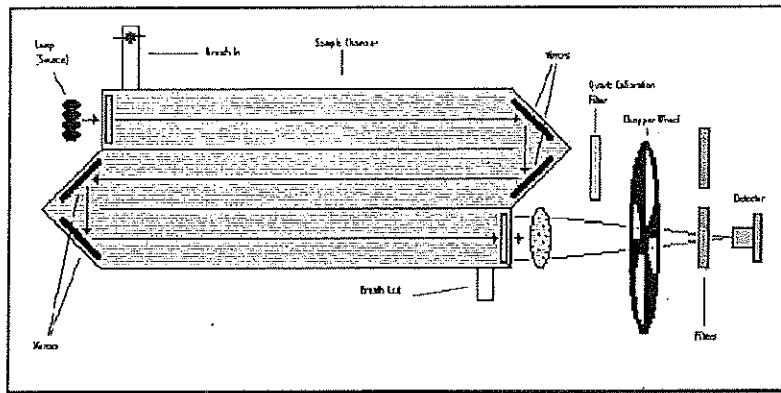
Principles:

All gas molecules absorb energy at specific and unique wavelengths, producing a “fingerprint.”

Ethanol absorbs infrared light in wavelengths from 3-5 microns. Instruments used in Indiana monitor within these wavelengths.



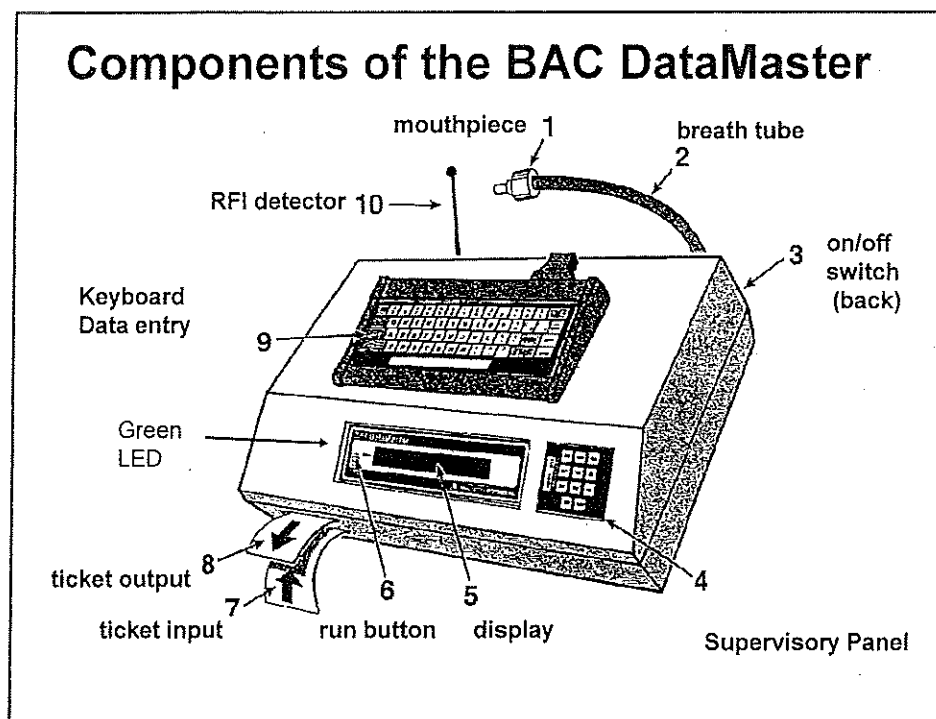
DataMaster (Optical Path Diagram)



Breath Ethanol Determination

Determination of ethanol content is possible because a linear (straight line) relationship exists between increasing Breath Ethanol Concentration and decreasing infrared light reaching the detector (increasing absorbance).

Infrared instruments calculate Breath Ethanol Concentration results. Operator cannot influence the final outcome of the test.



***The Approved Method must ALWAYS be followed exactly.**

***These are Rules not guidelines.**

Approved Method (step 1)

1. The person tested must:

(A) have had nothing to eat or drink:

(B) not have put any foreign substance into his or her mouth or respiratory tract; and

(C) not smoke;

within twenty (20) minutes before the time a breath sample is taken.

Must be 20 minutes (it is recommended to use the DataMaster clock)

No food, drink, or smoking

Dentures and mouth jewelry placed in the mouth more than 20 minutes before the breath test are not considered foreign objects

Approved Method (step 2)

2. The green LED on the instrument display must be glowing.

Display will read "READY" and "PUSH RUN" will be blinking

This indicates that the instrument is warmed up and ready to use.

Approved Method (step 3)

3. Depress the run button, enter the password, and insert the evidence ticket or verify that the external printer is ready to use.

Press RUN button

Enter password using keyboard

Insert the ticket

Glued edge first

Pink side up

Into lower slot

If external printer is used, check for power and paper

Approved Method (step 4)

4. Follow the displayed request for information, and enter the information by the keyboard.

Approved Method (step 5)

5. When “please blow” appears on the display, place a new mouthpiece in the breath tube. The subject must deliver a breath sample.

Use new mouthpiece

Use mouthpiece wrapper for protection

Subject

Operator

Verbal Instructions to Give to Subject:

Take a deep breath.

Make tight seal with mouth on mouthpiece.

Blow out with a steady, continuous breath until the tone becomes solid.

Keep blowing until the tone stops, or I tell you to stop.

Approved Method (step 6)

6. When the printer stops, remove the evidence ticket or report sheet from the printer and check the report printed on the evidence ticket or report sheet for the numerical ethanol subject sample and correct date and time.

Wait until printer stops to remove the evidence ticket

Check the evidence ticket or report for correct date and time

Example of Report

FACE THIS SIDE DOWN - THIS EDGE IN FIRST

BAC DataMaster
Evidence Ticket

STATE OF ILLINOIS
BAC DataMaster
INSTRUMENT 001022

JULY 18 - 2002

SUBJECT INFO:
TEST #18
SUBJECT SNR: 004-20-0000
SUBJECT ID# 02-13-00
SUBJECT SEX: M
OPERATOR NAME:
METHOD: 4-1
ANALYZING AGENCY:
TEST

--- BREATH ANALYSIS ---

BLANK TEST	.00	09:10
INTERNAL STANDARD	VERIFIED	09:10
SUBJECT SAMPLE	.07	09:10
BLANK TEST	.00	09:11

ALL TESTS PASSED AND APPROVED BY
ANALYST OF LABORATORY OF ILLINOIS

Scan Completion Time: _____
Operator Signature: _____
Date: _____

It takes approximately 2-3 minutes to obtain a valid result.

Blank Test: Prior to the sample delivery, the instrument purges the sample cell and determines a zero ethanol reference.

Internal Standard Check: Verifies that the measurement system is working properly.

Subject Sample: If ethanol is present in the sample chamber, the result will be greater than zero.

Blank Test: Clears the sample chamber of the breath captured during the subject test and verifies that there is only air in the chamber.

Approved Method

Go to lab and perform a personal breath test

Bring ticket back to the classroom afterwards

Use zeroes for SS numbers

Interpretation of Breath Test Results

Subject Sample .XX

The instrument obtained all the information required to begin a subject test.

The instrument ran a blank test and obtained a .00.

The instrument verified the internal standard.

The subject provided a valid breath sample.

The instrument ran a second blank and obtained a .00.

"Subject Test .XX" is printed on the evidence ticket along with the time, date, and subject information.

Approved Method (step 7)

7. If the report displays one of the following messages, **the test is not valid**; proceed as instructed:

No numerical value for SUBJECT SAMPLE will be printed, and no final BLANK TEST will be printed.

(A) If "subject sample interferent" is printed on the report, return to step 1 described in subdivision (1) and perform a second breath test beginning with a twenty (20) minute period.

If "subject sample interferent" is printed on the report of this second breath test:

(i) obtain an alternate chemical test for ethanol; or

(ii) perform the breath test on another evidentiary breath test instrument.

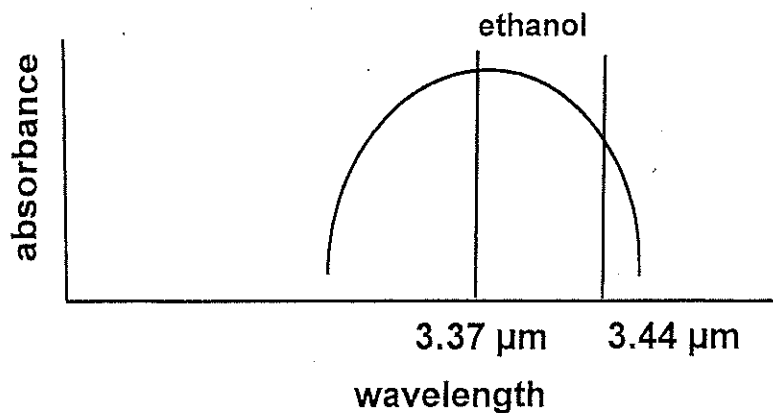
Possible reason for a "subject sample interferent" message:

Something besides ethanol was detected in the sample chamber.

Another 20 minute observation period is mandatory.

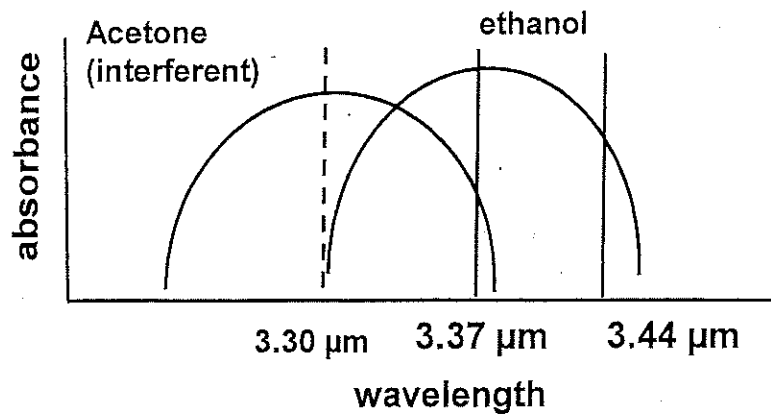
Interfering Substance

Absorbance must drop equally at the two wavelengths 3.44 and 3.37 μm for the instrument to measure ethanol.



Interfering Substance

If absorbance changes differently at 3.37 than at 3.44, the result is "subject sample interferent."



(B) If “subject sample invalid” is printed on the report, return to step 1 described in subdivision (1) and perform a second breath test beginning with a twenty (20) minute period. If “subject sample invalid” is printed on the report of this second breath test:

- (i) obtain an alternate chemical test for ethanol; or
- (ii) perform the breath test on another evidentiary breath test instrument.

Possible reasons for a “subject sample invalid” message:

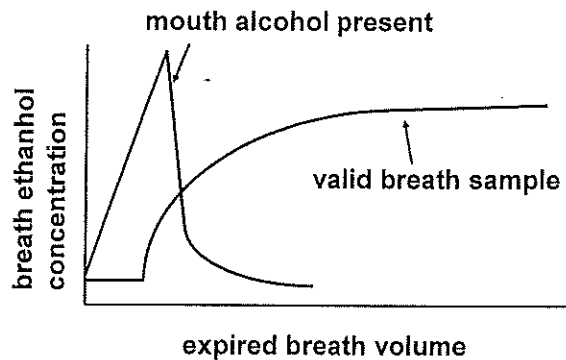
Mouth alcohol may be present

Erratic blowing pattern

Subject blew with excessive force

Mouth Alcohol

The DataMaster reads the ethanol concentration several times a second. If the slope of the concentration curve goes down for three measurements in a row, the result is “subject sample invalid.”



(C) If “radio interference” is printed on the report, locate and remove the source of interference and return to step 2 described in subdivision (2) and perform a second breath test. If “radio interference” is printed on the report of the second breath test:

- (i) obtain an alternate chemical test for ethanol; or
- (ii) perform the breath test on another evidentiary breath test instrument.

Possible Reasons for a “radio interference” message:

Radio-frequency interference (RFI), likely from a hand-held radio

Cell phones, VOX mike

Locate and eliminate the RFI source and retest. No further waiting is needed.

(D) If “subject sample incomplete” is printed on the report, return to step 2 described in subdivision (2) and perform a second breath test. If “subject sample incomplete” is printed on the report of this second breath test:

(i) obtain an alternate chemical test for ethanol; or

(ii) perform the breath test on another evidentiary breath test instrument.

However, if “subject sample incomplete” was caused by the lack of cooperation by the subject, the breath test operator should record that the test was refused.

Possible reason for “subject sample incomplete” message:

Subject did not deliver an adequate breath sample within the time required.

Retest the subject. No further waiting is needed.

Refusal of Breath Test

A test can be considered refused when one of the following occurs:

1. A verbal refusal is given.
2. The subject gives two “subject sample incomplete” results by not following the instructions given.

There is no scientific test to determine whether a subject refused a test.

Alternate Test

This is a blood test. The sample must be taken by a medical person, but a hospital is not needed.

The drawing of the subject’s blood should be witnessed by an officer.

Care of the Breath Test Instrument

Objectives:

To describe the features of the BAC DataMaster

To review other DataMaster messages and care of the instrument

To review ISDT repair policies

Features of DataMaster

Serial number is printed on each ticket. It will not be different from that on the back of the instrument.

Sample chamber is heated and monitored; breath tube is heated (warm to the touch).

Self-diagnostic: Electronics within the instrument are checked by a microprocessor. If not functioning properly, the instrument will display a status message, abort the test, and print the message on the ticket.

Supervisory Control Functions may only be accessed by authorized personnel.

Other DataMaster Messages

Blank Error - System Won't Zero/Ambient Fail

Potential Causes

1. The instrument is in an inadequately ventilated location.
2. The instrument is near an area that has been freshly painted or has solvent fumes or volatile fluids present.
3. The breath tube is too close to the subject. The subject may be exhaling sufficient amounts of alcohol to interfere with the ability of the instrument to zero.
4. The mouthpiece was not removed from the breath tube after the sample was delivered (Blank Error).
5. The pump is not working properly and is unable to purge the chamber.

Not Set Up

Pump Error

Detector Overflow

Out of Service

Calibration Error

Memory (nearly) Full

Recommended Actions

1. Seek an alternate test or test site.
2. Contact the Indiana State Department of Toxicology for service.
3. Keep ticket showing problem (make copy, if needed).

Care of the Breath Test Instrument

The instrument should be placed in a secure location that is kept clean and adequately ventilated.

The instrument should be left ON 24 hours a day.

Only persons authorized by the Director of the State Department of Toxicology can make changes that affect the calibration.

If an instrument must be turned off or on for some reason, any person can do so.

If the instrument is moved from one location to another (past the length of its power cord), it must be reinspected and recertified by the director.

State Department of Toxicology Instrument Repair Policies

If an instrument is not working properly, save the evidence ticket to show the problem, and call the State Department of Toxicology at 317-921-5000 to report it.

Provide the following information:

Officer's name (or name of contact person at instrument location)

Instrument location and telephone number

Instrument serial number

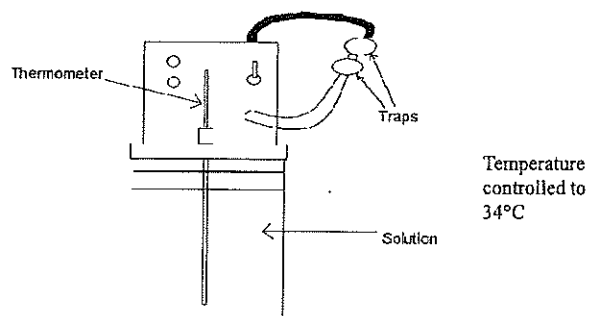
Description of problem and any error codes that may be displayed or printed on the evidence ticket

An inspector will be notified as soon as possible and will contact the instrument location.

Simulators

A simulator is an instrument designed to simulate a breath sample to the breath test instrument (like an artificial sample).

Design of a Simulator



Facts about simulators

Ethanol-in-water solution is in the simulator, kept at $34.0 \pm 0.2^\circ\text{C}$

The air space above the solution contains ethanol in equilibrium with the solution

Air is blown through the simulator, introducing the vapor into the DataMaster

Why use a simulator?

It provides an ethanol-containing sample without anyone having to drink:

“A drinker in a jar”

It provides a known ethanol concentration

It is used to calibrate the DataMaster

It is also used to check the calibration of the DataMaster

Care when using the simulator

It must be attached to the DataMaster only while the sample is being given.

If it is attached while the DataMaster is purging, the solution will be pulled into the sample chamber [NOT RECOMMENDED].

Laboratory

Go to lab for demonstration of use of the simulator

Then, in teams of 2, each perform simulator tests on at least 5 different simulators and instruments

An instructor must watch one of the tests

PBT

Objectives:

What is it?

Why use it?

Limitations of the instrument

Care of the instrument

Operating instructions

Calibration

Summary

What is a PBT?

PBT stands for Portable, Personal, or Preliminary Breath Test instrument.

A PBT is NOT AN EVIDENTIARY INSTRUMENT in the state of Indiana.

It should be used as a final tool for determining probable cause, after all field sobriety testing has been completed.

The PBT is based upon the 2100:1 ratio and uses fuel cell technology (2-5 year operating life).

Why use a PBT?

To determine if ethanol is the likely cause of previously-observed impairment.

It is used only after performing Field Sobriety Tests.

Its purpose is to help you to determine how or whether to proceed with evidentiary testing.

Limitations of a PBT

Mouth alcohol will be measured as a normal result and can give a very high result.

Alcohols other than ethanol will be measured, if present; they will not be detected as interferents.

Dependable results can be obtained on no more than 5 positive tests per hour (about 10 minutes between positive tests).

Care of the instrument

Clear the sample chamber within 5 minutes of a sample reading.

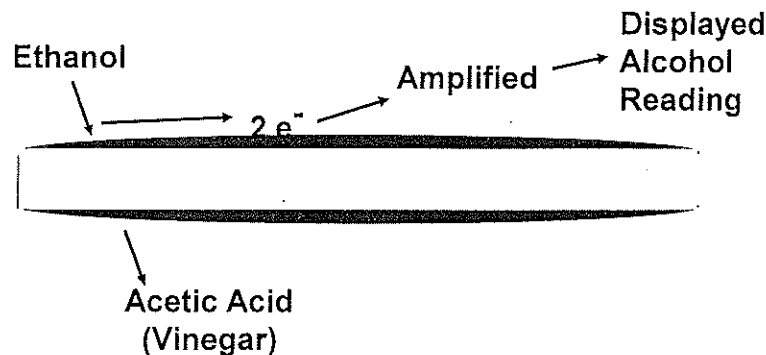
Store the PBT with the "SET" button depressed.

Replace the (9-volt) battery when the display reads ".88-.888."

Tobacco smoke will damage the instrument.

Check the instruction manual.

Fuel Cell Design



Operating Procedure

(Example for AlcoSensor II and III)

Wait for mouth alcohol to clear (20 minutes).

Check the temperature of the PBT.

Press and hold the "READ" button for 10 seconds. The display should show all zeroes.

Press the "SET" button. This clears the chamber with 1 mL of air.

Place a new mouthpiece on the PBT.

Instruct the subject to provide a sample with a long breath. Provide coaching to extend exhale time.

Before the subject stops blowing, press and hold the "READ" button. Stop the breath sampling and hold the button until the value displayed stops increasing.

Record the result, and press the "SET" button to clear the chamber.

PBT Calibration

Calibrate at least every six (6) months.

PBT Summary

The PBT is not an evidentiary instrument in the state of Indiana.

The PBT should not be used for more than 5 positive tests in an hour, or when it is not within the proper temperature range.

The PBT should be stored with the "SET" button depressed to purge residual alcohol.

Use a new mouthpiece for each subject.

A PBT requires a 20-minute wait and deep lung air for an accurate test.

Legal Aspects of the BAC DataMaster Test

Reasonable Suspicion vs. Probable Cause

Definition of Reasonable Suspicion

When is reasonable suspicion needed?

Phoned-in traffic complaints/tips

Reliable observer (usually officer)

When can officer rely on tip?

When must behavior be observed by officer?

Length of detention must be reasonable

Stop for minor traffic violation

Anticipate defense challenges

Stopping a suspected impaired driver

Definition of Probable Cause

When is probable cause needed?

When does reasonable suspicion become probable cause?

Implied Consent

A person who operates a vehicle impliedly consents to submit to a chemical test as a condition of operating a vehicle in Indiana.

Chemical test means an analysis of a person's blood, breath, urine, or other bodily substance for the determination of the presence of alcohol, a controlled substance or its metabolite, or a drug or its metabolite.

Implied Consent Warning

If the person refuses to submit to a chemical test, you shall inform the person that refusal will result in the suspension of the person's driving privileges.

Miranda Warning

Miranda warning must be given when suspect is in custody AND is being interrogated.

Many times, Miranda warning is given after the suspect fails the breath test.

Once the subject is in custody, there should be no officer-initiated discussion of the case with the subject or questioning of the subject until the Miranda warning is given.

In custody

Gray area – Not clearly delineated

Handcuffing suspect is placing "in custody."

Putting suspect in police car may constitute "in custody."

Traffic stop and asking subject to get out of car, in and of itself, is not "custody."

Interrogation

Neither Portable Breath Tests (PBT) nor Field Sobriety Tests (FST) are statements. They alone, therefore, do not constitute an interrogation.

Accordingly, if you do a PBT or a FST without interrogating suspect, you are not required to give the Miranda warning.

Similarly, breath and blood samples do not require Miranda warning.

Tip – to avoid confusion, do not give the Miranda warning before the Breath Test unless you are interrogating the suspect.

Your Testimony

Preparation for testimony **begins at the time of the incident**

Recognize and document significant evidence

Compile complete and accurate notes and reports

Preparation for testimony continues prior to trial

- Review case file

- Discuss case with other officers who witnessed or assisted

- Mentally organize elements of offense and supporting evidence

- Revisit the scene if appropriate

- Discuss case with assigned prosecutor

During Testimony

- Provide specific descriptive details

- Avoid vague language

Testimony regarding the breath test

- Describe administering the Approved Method

1. Observation time (use same timepiece throughout)
2. Instructions given
3. Subject cooperation or lack of cooperation
4. How results are expressed

Testimony about training

- Length of your training

- Dates of your certification

- Verify dates of certification with the certification card covering the period in question.

- Keep current certification card with you and save all old/expired cards.

- Topics taught in Breath Test Operator Training Course

- Officers are taught the areas outlined in 260 IAC 1.-1-2:

- (1) The pharmacology and toxicology of alcohol
- (2) The theory, operation, and care of breath test instruments
- (3) The legal aspects of breath testing for ethanol
- (4) The interpretation of breath test for ethanol results
- (5) Laboratory training using an approved instrument

Questions officers lack expertise to answer in testimony

Certification Process

How instruments are certified

When instrument was last certified

Any questions regarding instrument certification materials or process

Expert testimony regarding pharmacology/toxicology of ethanol

Effect of ethanol

How much ethanol results in impairment

Mechanics of Instrument Operation and Maintenance

How the instrument operates

How/when maintenance is done

Any other questions relating to repair and/or maintenance of instrument

"I don't know."

Do not volunteer more information than necessary to answer questions asked.

Any issue not raised and any question not asked

Focus on answering questions succinctly

Other Issues/Relevant Statutes

IC 9-30-5 and prima facie evidence of intoxication

1. .08 g. of ethanol per 100 ml. of blood or 210 liters of breath

2. .15 g. of ethanol per 100 ml. of blood or 210 liters of breath

IC 9-30-7 – implied consent for accident involving serious injury or death

"A law enforcement officer shall offer a portable breath test or chemical test to any person who the officer has reason to believe operated a vehicle that was involved in a fatal accident or an accident involving serious bodily injury." (IC 9-30-7-3)

Requirements for blood search warrant

Probable cause affidavit establishing that

1. subject was involved in accident resulting in serious bodily injury or death, and
2. accident occurred not more than three (3) hours before time sample is requested.

Subpoenas for hospital blood samples/test results: **IC 9-30-6-6**

If a physician takes a sample during the course of normal treatment, the sample or test results shall be provided to a requesting law enforcement officer **even if the patient does not consent.**

License Suspensions

Refusal of Chemical Test

1 year

2 years with prior

Chemical Test of .08 or above

180 days

**Approved Method for Administration of a Breath Test Using a BAC DataMaster with
Keyboard**

1. The person to be tested must:
 - (A) have had nothing to eat or drink;
 - (B) not have put any foreign substance into his or her mouth or respiratory tract; and
 - (C) not smoke;within twenty (20) minutes before the time a breath sample is taken.
2. The green LED on the instrument must be glowing.
3. Depress the run button, enter the password, and insert the evidence ticket or verify that the external printer is ready to use.
4. Follow the displayed request for information, and enter by the keyboard.
5. When "please blow" appears on the instrument display, place a new mouthpiece in the breath tube. The subject must deliver a breath sample.
6. When the printer stops, remove the evidence ticket or report sheet from the printer, and check the report printed on the evidence ticket or report sheet for the numerical ethanol subject sample and correct date and time.
7. If the report displays one (1) of the following messages, the test is not valid; proceed as instructed:
 - (A) If "subject sample interferent" is printed on the report, return to step 1 described in subdivision (1), and perform a second breath test, beginning with a twenty (20) minute period. If "subject sample interferent" is printed on the report of this second breath test:
 - (i) obtain an alternate chemical test for ethanol; or
 - (ii) perform the breath test on another evidentiary breath test instrument.
 - (B) If "subject sample invalid" is printed on the report, return to step 1 described in subdivision (1), and perform a second breath test, beginning with a twenty (20) minute period. If "subject sample invalid" is printed on the report of this second breath test:
 - (i) obtain an alternate chemical test for ethanol; or
 - (ii) perform the breath test on another evidentiary breath test instrument.
 - (C) If "radio interference" is printed on the report, locate and remove the source of the radio interference, return to step 2 described in subdivision (2), and perform a second breath test. If "radio interference" is printed on the report of this second breath test:
 - (i) obtain an alternate chemical test for ethanol; or
 - (ii) perform the breath test on another evidentiary breath test instrument.
 - (D) If "subject sample incomplete" is printed on the report, return to step 2 described in subdivision (2), and perform a second breath test. If "subject sample incomplete" is printed on the report of this second breath test:
 - (i) obtain an alternate chemical test for ethanol; or
 - (ii) perform the breath test on another evidentiary breath test instrument.If "subject sample incomplete" was caused by lack of cooperation by the subject, the breath test operator should record that the test was refused.

BAC DataMaster Questions

SUBJECT NAME:

Enter the name, last name / first name / middle initial. Be sure to enter the slash between the names. If Jr. or other suffix is needed enter after the middle initial without a space.

SUBJECT SSN:

If unknown use all zeros, the instrument will enter the hypens.

SUBJECT DOB:

If unknown use that days date. Needs to be in two digit for all entry fields.

SUBJECT SEX:

Use M or F only.

OWI Y/N:

If Yes (Y):

Prior OWI in the last 5 years	Y/N/U
Valid License	Y/N/U
Suspended	Y/N/U
HTV	Y/N/U

If No (N):

Work release	Y/N/U
Probation	Y/N/U
Minor Consumption	Y/N/U
Open Container	Y/N

ACCIDENT Y/N:

If Yes:

Property Damage	Y/N
Personal Injury	Y/N
Fatality	Y/N

If No:

OPERATOR NAME:

Your name as listed on your State Department Wallet Card, last name / first name / middle initial. Be sure to enter the slash marks (/) between the names.

OPERATOR ID:

The operator ID number as listed on your State Department of Toxicology Wallet Card, not your PE#.

ARRESTING AGENCY:

This may be the full name or initials. May also enter PE# or other ID needed.

REVIEW DATA Y/N:

Day 1: Laboratory Exercise

Purpose: Students will perform personal breath tests on themselves, breath tests on their lab partners, and simulator tests on simulators containing unknown ethanol concentrations using an infrared breath test instrument (BTI).

Method: Each student will perform a personal breath test, a breath test on their lab partner, and a minimum of five (5) simulator unknowns. The student will demonstrate his/her ability to conduct a proper breath test by following the approved method for the breath test instrument currently used in Indiana. Performance of one of the simulator tests must be observed by an instructor.

Outline:

Lab instructions

Student's practice with instructor observation
(perform personal breath test)

Individual instruction, practice and practicals

Clean up and paperwork review

Day 1: Laboratory Exercise

Date: _____

Operator: _____

Subject: _____

Test Result

Personal Breath Test

Breath Test on Lab Partner

Simulator

Test Result

1. _____

2. _____

3. _____

4. _____

5. _____

I have observed the student perform one of the above simulator tests and verified that proper techniques were used.

Instructor

Date

Day 2: Laboratory Exercise I (Morning)

Purpose: The student will perform breath tests using an infrared breath test instrument and participate in a residual mouth alcohol experiment. The student will test and record four (4) unknown simulators and participate and record in a mouth alcohol experiment.

Method: The student will conduct a minimum of four (4) breath alcohol tests for intoxication on simulator unknowns. Each student will have the opportunity to participate in an experiment verifying the ability of the BTI to detect mouth alcohol and illustrating the importance of the 20 minute deprivation period. The student will demonstrate his/her ability to conduct a proper breath test by following the approved methods for the breath test instrument currently used in Indiana.

Outline:

Exercise I: Test and record four (4) unknowns.

Exercise I: Test and record a mouth alcohol test experiment.

Day 2: Laboratory Exercise I (Morning)

Date: _____

Operator: _____

Subject: _____

Simulator #

Test Result

1. _____

2. _____

3. _____

4. _____

Mouth Alcohol

Test Results

DataMaster Instrument Serial # _____

Group # _____ Start Time _____

PBT

EXACT
TIME

EXACT
DATAMASTER TIME

1 - 2 Minutes _____

5 - 10 Minutes _____

10 - 15 Minutes _____

20 Minutes _____

Day 2: Laboratory Exercise II (Afternoon)

Purpose: The student will perform breath tests for intoxication using an infrared breath test instrument (BTI). The student will perform four (4) unknown simulator tests and administer a breath test on an instructor as a test subject.

Method: The student will conduct a minimum of four (4) breath alcohol tests for intoxication on simulator unknowns. The student will test and record a breath test administered to the instructor. The student will demonstrate his/her ability to conduct a proper breath test by following the approved methods for the breath test instrument currently used in Indiana.

Outline:

Exercise I: Test and record four (4) unknowns.

Exercise I: Test and record a breath test on the instructor.

Day 2: Laboratory Exercise II (Afternoon)

Date: _____

Operator: _____

Subject: _____

Simulator #	Test Result
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

I was properly tested by this student.

Instructor: _____

Date: _____